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NJ Water Monitoring Council

Measuring What Counts for Clean & Plentiful Water

May 20, 2015

MEETING MINUTES

Member Attendees

NJDEP – *WM&S*: Leslie McGeorge, Alena Baldwin-Brown, Brian Henning, Tali MacArthur, Vic Poretti, Bob Schuster *NJGWS* – Karl Muessig *OS* – Gary Buchanan, Sandra Goodrow *C&LUP* – Danielle Donkersloot

NJDOH –

USGS – Bob Reiser, Tom Imbrigotta

USGS (retired) – Art Baehr

DRBC –

EPA R2 – Darvene Adams

IEC – Evelyn Powers

NJ Pinelands Commission – Sarah Johnson

NJ Water Supply Authority – Heather Desko

Rutgers (Coop Extension Service) –

Rutgers (IMCS) –

Rutgers (Env. Bioengineering) – Eric Vowinkel

Montclair University – Meiyin Wu

Monmouth University/Urban Coast Institute – Jim Nickels

Stockton College –

Meadowlands Environmental Research Institute –

NOAA – Matthew Poach

Monmouth County Health Dept – David Sorenson

Barnegat Bay Partnership – Jim Vasslides

Stony Brook-Millstone Watershed Association – Erin Stretz

Musconetcong Watershed Association – Nancy Lawler

Raritan Headwaters Association – Angela Gorczyca

Great Swamp Watershed Association – Laura Kelm

NJ Harbor Dischargers – Ashley Slagle

Brick Township MUA – William Ruocco

Guest Speakers/Discussion Leaders

Kimberly Cenno– NJDEP/DWM&S

Patricia Gardner - NJDEP/DWM&S

Other Attendees

Heather Fenyk – Lower Raritan Watershed

Robin Jazxhi – IEC

Nina Odunlami – NJ Watershed Ambassador

Zoltan Szabo – USGS NJWSC

Alexandra Walczak – NJ Watershed Ambassador

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- **Council Business** (Copies of the agenda, minutes and many of the information updates and presentations will be available on the Council’s webpage, under “Meeting Information” - <http://www.state.nj.us/dep/wms/wmccmeetinginfo.html>)
- Minutes from the 01/21/15 Council meeting were approved. The list of Gaps/Needs for environmental mercury data was presented. There were no comments or questions. If members have any additional comments on the Gaps/Needs, please send them to Leslie, Bob or Alena.
- Next NJWMC meeting is scheduled for September 23 at NJDEP HQ
- Suggested Technical Themes for the September meeting are Contaminants of Emerging Concern and Cyanobacterial Harmful Algal Blooms. Wetlands condition monitoring has been suggested for the Winter 2016 meeting. Additional suggestions for future meetings included: bacterial source tracking for pathogens, citizen science, and effectiveness monitoring for restoration work.
- Information Updates, Presentations and Announcements:
 1. **Membership Updates** – **New Members:** Laura Kelm has joined the Council representing the Great Swamp Watershed Association, Tali MacArthur has joined the Council representing the DEP’s Citizen Science Program. **Replacement Members:** Evelyn Powers has replaced Caitlyn Nichols for IEC, Matthew Poach has replaced Jennifer Samson for NOAA, and David Sorenson is the new Monmouth County Health Department representative. **New Roles for Existing Members:** Danielle Donkersloot is now working in DEP’s Coastal and Land Use Planning Program, primarily overseeing wetlands restoration- related citizen science projects. **New Steering Committee Member:** Nick Procopio (NJDEP/Office of Science) has joined the Steering Committee. **Retirement:** Randy Braun (EPA Region 2) retired, effective May 1.
 2. **Announcements** – 1. Karl Muessig announced that he will be retiring, effective July 1 and that his successor as the Acting State Geologist will be Jeff Hoffman [Note: Jeff will also be replacing Karl on both the NJWMC Steering Committee as well as the full NJWMC]. 2. Karl also announced that the NJGWS has recently published a 1-250,000 scale geologic map that is available on the NJGWS website (<http://www.nj.gov/dep/njgs/>). 3. Bob Reiser announced that Jeff Fischer is the new Acting Associate Director for the USGS NJ Water Science Center. 4. Bob also announced that the USGS NJWSC has recently published the 4th in a series of flood inundation maps/reports. This one focuses on the HoHoKus Brook. The map/report is available from the USGS Publications Warehouse (<http://pubs.er.usgs.gov/publication/sir20155064>). Maps will be available soon on the USGS & NWS Flood Inundation Map websites. 5. Zoltan Szabo announced that the USGS has also released NAWQA aquifer studies in USGS circulars 1353, 1354, and 1360 and SIR 2013-5072 which are available from the Publications Warehouse mentioned above. 6. Jim Vasslides invited all NJWMC members to the May 27 Barnegat Bay Science Symposium on May 27 at Ocean County College. 7. Evelyn Powers announced that IEC is now primarily focusing on lab and monitoring activities and that they are revamping their programs with a more intensive focus on partnerships, including increased work with NJ.
 3. **National Water Monitoring Information from the National Water Quality Monitoring Council (NWQMC)** – Leslie McGeorge and Danielle Donkersloot shared information and draft minutes from the February NWQMC meeting, including: a. an update on the activities of the Sensors Workgroup which featured development of a Sensors Guide which is expected to be a 2015 journal publication, development of a strategy for data sharing and data standards (including an evaluation of the Rutgers/NJ portal), and finalizing a field deployment guide which is expected to be on the NWQMC website in 2015; b. National Water Quality Portal progress including the plan to add NOAA discrete data, additional groundwater data and biological community data; c. information about the California Water Monitoring Council Portal with data & information presentation by water use themes (e.g., “safe to swim”), clickable maps including raw data and assessed information, and statewide statistics (<http://www.mywaterquality.ca.gov/>); d. the availability of two new USGS R-based tools to evaluate contaminant fluxes and trends: dataRetrieval and EGRET (<http://github.com/USGS-R/EGRET/wiki>); e. development of Water Monitoring Design Fact Sheets, by the Water Information Strategies Workgroup, including statistical surveys, fixed station, targeted and rotating basin. When complete, the fact sheets will be available on the NWQMC website; f. the announcement of the dates and location for the 2016 National Water Monitoring Conference - May 2-6 in Tampa, FL; g. the availability of the Spring issue of the Council’s newsletter and 2 upcoming webinars: Ground Water Contamination (6/16) and Microplastics in Great Lakes’ Tribes (7/14); h. an explanation of the difference between Citizen Science and Volunteer Monitoring; and i.

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updates on the activities of the Volunteer Monitoring Workgroup. The final minutes and presentations from the meeting are now available on the NWQMC website:

http://acwi.gov/monitoring/ppt/telecon_072914/index.html.

4. *NJ Long Term Monitoring and Assessment Strategy Update* – Pat Gardner (DEP/DWM&S) provided an update on the ongoing work related to updating NJ’s Long Term Water Monitoring and Assessment Strategy. This included an overview of the goals, objectives, monitoring network descriptions, gaps and enhancements and data management pieces that have been developed to date – including a review of the nutrients, mercury, continuous monitoring, ground water and water quality data access gaps and enhancements identified by the NJWMC in several previous meetings. Pat also shared next steps in this process which include several internal DEP meetings as well as a meeting with the NJWMC to solicit feedback on development of the strategy (format & content), partnering opportunities and leveraging of resources [Note: meeting with NJWMC has been scheduled for August 18].

5. *Data Solicitation for the 2016 303(d) List and Integrated Report* – Kimberly Cenno (DEP/DWM&S) shared information regarding the current Data Solicitation opportunity for New Jersey’s 2016 Integrated Water Quality Monitoring and Assessment Report. This included details of what types of monitoring data are being sought, time periods in which the data need to have been collected (Jan 1, 2010 - July 1, 2015), repositories in which the data must either already reside or be uploaded to, deadline by which the data must be available in these repositories (October 1, 2015), as well as required accompanying documentation (e.g., QAPP). For continuous monitoring data, which is not yet stored in any of the repositories, a DWM&S contact person has been identified for assistance (Jack Pflaumer – jack.pflaumer@dep.nj.gov). NJWMC member organizations have provided data for multiple previous Integrated Reports. Kim also explained the various uses of the data (e.g., TMDLs, permits, enforcement, etc.) as well as a summary of the assessment process itself.

➤ **Session – Watershed Association/Local/Volunteer Water Monitoring**

A. *Musconetcong Watershed Association’s Monitoring Program: Producing and Communicating Data for Citizen Action* – Nancy Lawler (MWA)

Nancy Lawler provided an overview of the history of watershed association/citizen-related monitoring and specific information related to the Musconetcong Watershed Association and how it produces and uses monitoring data for citizen action. Nancy shared that citizen monitoring dates back ~1922 when the Izaak Walton League of America began an education effort related to fishing and a decline in water quality. She explained that as threats to water quality increased due to rising development, Watershed Associations were formed for protection. Early Watershed Associations included the Brandywine Watershed Association (1948) and the Stony Brook Millstone Watershed Association (1949). [note: the Stony Brook Millstone Watershed Association began as a result of Princeton University’s interest in protecting Carnegie Lake].

Musconetcong Watershed Association (MWA), which began in 1992, grew out of a grassroots effort to protect farmland in the northwest section of NJ. The current Association focuses on protection, preservation and restoration of the Musconetcong River and its tribs through education about the river and related resources. MWA has 2 levels of water quality monitoring: 1. River Watchers Program (paraprofessional/volunteer) – monitors quarterly to capture seasonal differences, collects watershed-wide baseline basic chemical/physical, macroinvertebrate and visual habitat data at 5 sites throughout the watershed which informs protection & preservation efforts; 2. Staff/interns – perform higher level and/or more frequent monitoring, often with a much more narrow focus, including answering questions related to restoration efforts and support for the Academy of Natural Science’s Cluster Studies. Projects and studies currently underway include low DO/high temperature at Lake Hopatcong (with MSU), road salt study (with Rider Univ), a study on river recovery times post-dam removal funded by the Watershed Institute, development of a protocol (with NRCS) for underwater photos around restorations, as well as development of a Watershed Report Card (with the Lake Hopatcong Foundation). Additionally, MWA has an approved QAPP for using biological indicators pre and post dam removals and restorations for assessment. Areas in which MWA has received support from the state or other agencies include quality assurance assistance and feedback so that data can be used for regulatory assessment purposes, lending of equipment, equipment calibration, training, data management assistance, as well as various

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assistance from NJ Watershed Ambassadors. Areas in which MWA is able to provide support to other agencies include sample gathering and visual assessments; however, routine funding is an issue so if agencies know in advance (>1 year) that they would like assistance, MWA can apply for grants to cover funding.

B. Great Swamp Watershed Association's Monitoring Program, including Communicating Data – Laura Kelm (GSWA)

Laura Kelm shared information about Great Swamp Watershed Association's (GSWA) genesis (1960s fight against a proposed jetport and then formation of the association in the 1980s to protect against future development) as well the overall watershed, which covers 55 square miles and includes 10 towns and 5 streams. It is situated at the very headwaters of the Passaic River. GWSA's mission is focused on protecting and improving local water resources; the monitoring program one of the ways in which this is accomplished. The monitoring program, which consists of 1 full time employee and numerous volunteers, includes chemical, macroinvertebrates, visual and summer e.coli at stations on all 5 streams and several tributaries. Results from these monitoring efforts have led to actions such as: DEP conducting follow-up continuous conductivity monitoring on a problematic stream; the acquisition by GSWA of two sondes to do follow-up monitoring on trout production streams where summer temperatures are high; discoveries of potentially invasive aquatic plant species, illegal stream dredging, and nutrient output from a local wastewater treatment plant; and discoveries of artificially low e.coli & total coliforms by a municipal swimming pool as well as very high e.coli levels at GSWA's Conservation Management Area. Communicating the data and information is just as important. GWSA has previously produced smaller reports of limited scope (e.g., 1 subwatershed) primarily for a technical audience. In addition, a State of the Watershed Report was produced in 2013. Currently, they are working to create a Water Quality Report Card for non-technical audiences, which is designed to answer the question "How's the Water?". This is expected to be completed this summer. All monitoring data collected, previous reports as well as other information used to create the report card (grading criteria/scales, methods used, etc.) will be or already are available on GWSA's website - <http://greatswamp.org/>.

C. Raritan Headwaters Association's Monitoring Program, Data Availability and Case Study of Problem ID/Resolution from Monitoring Efforts – Angela Gorczyca (RHA)

Angela Gorczyca summarized a wide variety of information about the Raritan Headwaters Association (RHA) including its genesis, its monitoring program, data availability and how RHA's monitoring efforts are contributing to identification/resolution of a local environmental problem. RHA is the result of the merging, in 2011, of 2 former watershed associations – Upper Raritan Watershed Association and the South Branch Watershed Association (both of which were originally found in 1959). RHA's primary focus is science, advocacy, education, land preservation and stewardship in both the north and south branch regions of the Raritan River. The Raritan Headwaters region is 470 square miles, part of 3 counties (Hunterdon, Somerset and Morris), includes all or parts of 39 municipalities, contains large areas of undeveloped areas and includes Spruce Run and Round Valley Reservoir. Because of its significant role in providing water supply, stream monitoring is an important function - in some areas of the watershed, >20 years of monitoring data exist. The stream monitoring program has 3 major functions: screen for impaired waterbodies, identify the source/severity of water quality problems, and detect trends in water quality over time. There are 52 HUC 14s in the watershed and RHA's goal is to have at least 1 monitoring station in each HUC (currently they have 50+ sites, some of which they try to match with DEP AMNET sites). Monitoring is performed by both RHA staff and >100 active volunteers and consists of macroinvertebrate sampling and visual habitat assessment. In 2015, the stream monitoring was expanded into the eastern portion of the watershed. RHA's data are available via interactive maps on their website (<http://www.raritanheadwaters.org/>). In addition, they also host an annual State of the Watershed Conference and publish various monitoring-related reports. Their monitoring information is currently being used to assist in determining the potential effects of both a landfill as well as land use changes on water quality in a tributary of the Ledgewood Brook in Roxbury Township.

D. Water Monitoring Programs of the Stony Brook Millstone Watershed Association: Developing Rewarding Partnerships with NJDEP, Municipalities and Universities – Erin Stretz (SBMWA)

Erin Stretz provided some history regarding the Stony Brook Millstone Watershed Association (SBMWA) as well as information regarding SBMWA's monitoring program, including work that they have done with other

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partners. SBMWA – the first environmental organization in central New Jersey – was founded in 1949 by a group of local residents. It currently resides on a 930 acre preserve and employs ~2 dozen staff working on conservation, advocacy, science and education issues. Its newly constructed Watershed Center has been certified LEED Platinum and offers features such as classrooms, a laboratory, meeting space, exhibits, stormwater reuse, a green roof, rain gardens, and solar heated water, among others [note: Erin offered the facility for a future NJWMC meeting and, as such, the Winter NJWMC meeting will be held there on January 21, 2016]. SBMWA employs both long term and project-specific monitoring programs. The Stream Watch Program, which began in 1992 and utilizes volunteers for assistance, has 4 pieces/teams: 1. Chemical Action Team - monitors 40 sites/month with the assistance of ~50 volunteers for temp (air & water), pH, dissolved oxygen, turbidity, nitrate-nitrogen and orthophosphate; 2. Biological Action Team - monitors 12 sites 3x/year with the assistance of ~30 volunteers. Macroinvertebrate collection follows EPA's Rapid Bioassessment Protocol and organisms are id'd down to the family level, 3. Bacterial Action Team - responsible for >13 sites which are monitored for E. coli over 10 weeks during the summer with the help of ~20 volunteers, and 4. River Action Team (currently inactive). Data are used for baseline comparisons and to target sites for additional monitoring. Data are submitted to EPA and are available via the National Water Quality Portal. In addition, report cards for each of the HUC12s in the watershed are developed every 3 years; these report cards are available on the SBMWA website (<http://thewatershed.org>). The facility will soon begin the process to become a certified lab. Various project-related monitoring includes: Millstone River Dam Removal Monitoring (7 sites monitored Apr-Sept), fish passage through Island Farm weir (with Rutgers Univ), marine-derived nutrients in benthic macroinvertebrates (with Rutgers Univ), Fish assemblage monitoring (with DEP's BFBM), as well as a project tracking down sources of bacteria at Peddie Lake (with DEP's BMWM).

E. AmeriCorps/NJ Watershed Ambassadors Monitoring – Kimberly Cenno (DEP/WM&S)

Kim Cenno detailed the AmeriCorps NJ Watershed Ambassador Program including who the ambassadors are, what they do, types of monitoring they perform and how the data that they collect are used. Kim explained that the program is part of the Stewardship Unit of DEP's BEARS. As such, the ambassadors work to raise public awareness about water, watershed issues and non-point pollution, promote stewardship through community involvement, provide education programs to schools and groups as well as spearhead partnership projects such as cleanups, rain barrel workshops, tree plantings, invasive species removal, etc. In addition, they perform biological and visual assessments of streams and lakes in their watershed management areas. Some of these activities are done in conjunction with DEP needs resulting from waters being listed as impaired – these could include additional data gathering, streambank restoration, and education. Other uses of ambassador-collected data include: fecal and total phosphorus TMDLs, microbial source trackdown work, stressor identification work, 319(h) grant restoration sites, arsenic trackdown, temperature investigations, diatom work and USGS trends work. Additionally, because their data (since 2009) have been submitted to EPA's STORET warehouse and are available via the National Water Quality Portal, it has also been used in the preparation of the 2010, 2012 and 2014 Integrated Reports.

F. DEP's Direction for Volunteer Monitoring/Citizen Science – Tali MacArthur (DEP/WM&S)

Tali MacArthur shared the new direction for the program formerly known as Volunteer Monitoring in the Division of Water Monitoring & Standards (DWM&S), now known as Citizen Science (CS). Tali provided the revised goals and objectives for the program, which include support for existing as well as new CS programs, developing and strengthening partnerships for monitoring and assessment activities, and development of a repository of CS-related information. She also showcased an ongoing inventory of existing CS programs in NJ that is being developed (including a map with program locations) as well as a potential new vision for the Lake Watch Program which is expected to include a focus on tracking algal blooms and visual assessments being performed by lake community members/associations. In addition, Tali requested feedback from NJWMC members regarding content for the CS website, assistance in providing information for the CS Program inventory, ideas for locations for the fall Stream School Program, as well as thoughts on speakers and topic ideas for the upcoming Volunteer Water Quality Monitoring Summit (scheduled for November 13, 2015 at The Watershed Institute). [Note: Stream School has been scheduled for Oct 23-24 at the Duke Farms]

G. Council Member Collaborations with Local/County/Watershed Associations

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The following NJWMC member organizations indicated they have or currently are collaborating with these types of partners:

- Monmouth University (with the Whale Pond Brook Watershed Association) – water quality work, sediment loading assistance, QAPP preparation, & equipment loans
- USGS NJWSC – has agreements with local counties and municipalities to monitor streamflow. Some agreements are requirements for water allocation permits
- Montclair State University – (with Musconetcong Watershed Association) low DO/high temperature study at Lake Hopatcong
- EPA Region 2 2015 Citizen Science Water Monitoring Equipment Loan Program Training - DESA staff provided training on the water monitoring equipment to the four applicants (Bronx River Alliance; Save the Sound; Hudson Valley Arts and Science; and the New Jersey City University) on May 6, 2015. The equipment is being loaned to them on a short-term basis (April – December of each calendar year), and is currently limited to water quality meters, equipment to run laboratory bacterial tests, GPS units, and turbidity tubes. The participants will be monitoring urban waters and/or tributaries in Environmental Justice areas throughout New York and New Jersey.

➤ **Action Items**

- Investigate possibility of holding future NJWMC at the Stony Brook Millstone Watershed Association's new Environmental Center – *Leslie & Alena*
- Provide feedback/ideas/information to Kim for the new Citizen Science website, CS Program Inventory, and Volunteer Water Quality Monitoring Summit – *all Council members*

➤ **Technical Topics for Next Meeting**

Contaminants of Emerging Concern/Cyanobacterial Harmful Algal Blooms

➤ **Next Meeting**

September 23 at NJDEP HQ

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Gaps/Needs in Watershed Association/Local/Volunteer Monitoring

- Funding
- QAPPS – need clarity on what’s required by both DEP vs EPA as well as need assistance in preparation of plans – QAPP specific approvals for DEP OQA?
- Need a QAPP Database where QAPPS could be shared [note: The Watershed Institute website has several examples, Montclair State Univ has just finished a project that has an approved QAPP for the IDEX method that MSU is willing to share]; QAPP review and approval assistance
- Explore the possibility of a fee waiver or other means of obtaining lab certification or approvals at little or no cost
- “Science Shop Clearinghouse” – listing of expertise and/or technical assistance or services offered (government, academics, watershed associations, etc.)
- Equipment loan and/or calibration assistance
- Ways to involve local partners more at the beginning of developing a study design so as to make the data more “actionable”
- Ways to allow volunteers to assist in screening and/or prioritizing for sites where additional monitoring can take place
- Continued development of good water monitoring relationships/partnerships
- Tools for capacity building (e.g., developing Boards, budgets, strategic planning, etc.)
- Could there be MOUs between Watershed Associations and academics?
- Data submittal apps are needed [note: it was discussed that the 2015-2016 Watershed Ambassadors will be piloting a new data submittal app, that the NWQMC is working on an app, and that EPA is also working on one for the National Aquatic Resource Surveys]
- Availability (or restoration) of “mini grants” for monitoring – this funding is often used as seed money for cooperating on projects and/or hiring interns (e.g., leveraging of resources). Non-Profits can also use government funds as “match money” when applying for other grant funding. [note: The Watershed Institute still has a small grants program – funds are for activities such as restoration, report cards, etc.)
- Need up-to-date information on active watershed associations for partnership opportunities; spatial coverage of the area represented by the watershed association and type(s) of data collected would be esp. helpful
- Need information on what data the State and USGS already collect
- Need training in use of data interpretation analysis tools
- Need better communication on how to use data to track down sources/causes problems
- Agencies, academics and watershed associations would like to have a NJ Water Monitoring Summit held in 2016 [note: Erin Stretz and Heather Desko volunteered to be part of the Planning Committee if a decision is made to hold this event]
- Is there any possibility of tapping into STEM funding via partnerships with academia